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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/064,624	07/31/2002	John Scott Price	Gem-0033	8849
23413	7590	06/15/2004	EXAMINER	
CANTOR COLBURN, LLP 55 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002			HO, ALLEN C	
			ART UNIT	PAPER NUMBER
			2882	

DATE MAILED: 06/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/064,624

Applicant(s)

PRICE ET AL.

Examiner

Allen C. Ho

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-- Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication; even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-3, 5-24 and 31 is/are allowed.
- 6) ☒ Claim(s) 4 and 25-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Specification***

1. The disclosure is objected to because of the following informalities:

Paragraph [0029], line 16, "206" should be replaced by --204--.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 4 and 25-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 recites a power supply configured to provide an anode-to-cathode gap voltage, the anode is referenced to ground potential and the cathode is connected to a negative terminal of a second power supply. It is unclear how the power supply provides the anode-to-cathode voltage if the second power supply provides a negative potential to the cathode. Furthermore, claim 4 recites the limitation "said second power supply". There is insufficient antecedent basis for this limitation in the claim.

Claims 25-30 recite "said x-ray tube configured to generate an anode-to-cathode gap voltage greater than 150 kV". However, as understood by persons skilled in the art, the gap voltage is generated by a power supply, not by the x-ray tube.

*Claim Rejections - 35 USC § 102*

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 25, 26, 29, and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Halavee (U. S. Patent No. 6,324,257 B1).

With respect to claim 25, Halavee disclosed a power supply cable for an x-ray tube (7) comprising: a waveguide (4) configured to transfer optical energy to the x-ray tube; an electrical conductor (3a, 3b) configured to transfer electrical energy to the x-ray tube, the electrical conductor surrounding at least a portion of the waveguide along a length of the cable; and an insulation material (10) disposed between the waveguide and the electrical conductor, the insulation material surrounding the waveguide and the electrical conductor.

With respect to claim 26, Halavee disclosed the cable of claim 25, wherein the electrical conductor includes two electrical conductors (3a, 3b) surrounding at least a portion of the waveguide (4), the two electrical conductors configured to optimize a skin effect for pulsed power current transmission through the two electrical conductors (This is inherent. The skin effect is always present and optimized according to the shapes of the conductors).

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With respect to claim 29, Halavee disclosed the cable of claim 25, wherein the waveguide includes one of an optical fiber and a bundle of optical fibers (column 7, lines 66-67; column 8, lines 1-3).

With respect to claim 30, Halavee disclosed the cable of claim 25, wherein the waveguide is made from one of a plastic and a glass (column 8, lines 3-5).

*Allowable Subject Matter*

6. Claims 1-3, 5-24 and 31 are allowed.

7. Claims 4, 27 and 28 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter:

With respect to claims 1-10, the prior art fails to teach or fairly suggest a pulsed power application system for an x-ray tube comprising a power supply configured to provide optical energy and an anode-to-cathode gap voltage via electrical energy, the anode-to-cathode voltage is greater than 150 kV as claimed.

With respect to claims 11-20, the prior art fails to teach an x-ray tube comprising a power supply configured to provide optical energy and an anode-to-cathode gap voltage via electrical energy, the anode-to-cathode voltage is greater than 150 kV as claimed.

With respect to claims 21 and 22, the prior art fails to teach a method to reduce the size for improving the efficiency of operation in x-ray tubes comprising connecting the power supply to an x-ray tube with a means for transferring the optical energy and the electrical energy from

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the power supply to the x-ray tube, the gap voltage between the anode and the cathode is greater than 150 kV as claimed.

With respect to claims 23 and 24, the prior art fails to teach or fairly suggest a pulse power system for an x-ray tube comprising a power supply configured to provide optical energy generating photons and electrical energy generating an anode-to-cathode gap voltage, the anode-to-cathode gap voltage is greater than 150 kV as claimed.

With respect to claims 27 and 28, the allowable subject matter were set forth in the previous office action.

With respect to claim 31, the prior art fails to teach or fairly suggest a method to reduce the size of a power cable supplying an x-ray tube comprising configuring the conductor to use a transmission line effect of a pulse train of power to maximize voltage at the x-ray tube as claimed.

### *Response to Arguments*

9. Applicant's arguments with respect to the specification have been fully considered and are persuasive. The objection of the specification has been withdrawn.

10. Applicant's arguments with respect to the drawings have been fully considered and are persuasive. The objection of the drawings has been withdrawn.

11. Applicant's arguments with respect to claim 21 have been fully considered and are persuasive. The objection of claim 21 has been withdrawn.

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12. Applicant's arguments with respect to claims 2, 3, 8, 9, 12, 14, 18, 19, 24 have been fully considered and are persuasive. The rejections of claims 2, 3, 8, 9, 12, 14, 18, 19, 24 under U.S.C. 112 have been withdrawn.

13. Applicant's arguments with respect to claims 1, 3, 5-7, 10, 11, 13-17, 20-23, and 31 have been fully considered and are persuasive. The rejections of claims 1, 3, 5-7, 10, 11, 13-17, 20-23, and 31 have been withdrawn.

14. In response to applicant's argument that Halavee failed to teach or fairly suggest an x-ray tube configured for diagnostic imaging, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

### ***Conclusion***

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen C. Ho whose telephone number is (571) 272-2491. The examiner can normally be reached on Monday - Friday from 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached at (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Allen C. Ho  
Patent Examiner  
Art Unit 2882

ACH ACH 08.06.2004



DAVID V. BRUCE  
PRIMARY EXAMINER